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allocating at least a portion of the RF spectrum from [a] the group having [a] best state of performance to at least one of the plurality of [other] RF transmitters and receivers.

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**Please add the following new claims:**

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5. The method of Claim 1, further comprising assigning a data rate to at least one of the plurality of RF transmitters and receivers.

6. The method of Claim 1, further comprising determining the size of the portion of the RF spectrum to be assigned away from the group having the best state of performance.

7. The method of Claim 1, further comprising determining demand of the group based, at least in part, on the demand of at least one of the RF transmitters and receivers of the group.

8. The method of Claim 7, wherein determining the demand of the group includes adjusting the demand based, at least in part, on quality of service of each of the RF transmitters and receivers of the group.

9. The method of Claim 1, wherein monitoring the communication parameter includes monitoring the aggregate demand of the group.

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10. The method of Claim 1, wherein monitoring the communication parameter includes monitoring performance of an RF channel of at least one of the RF transmitters and receivers.

11. The method of Claim 10, wherein monitoring performance of the RF channel includes measuring at least one of the signal-to-noise ratio (SNR) and bit error rate (BER) of the channel.

12. The method of Claim 1, wherein determining the state of performance of the group includes determining length of data queue of the group.

13. The method of Claim 12, wherein allocating at least a portion of the RF spectrum from the group having the best state of performance includes allocating a portion of the RF spectrum from the group having the smallest length of data queue.

14. The method of Claim 1, wherein allocating at least a portion of the RF spectrum from the group having best state of performance includes allocating a portion of the RF spectrum from the group for which data traffic is least congested.

15. A method of allocating at least a portion of the radio frequency (RF) spectrum among a plurality of RF transmitters, the method comprising:

monitoring demand of a group of transmitters within the plurality of RF transmitters, the group comprising at least one RF transmitter;

determining, in response to the monitored demand, relative data congestion of the group of transmitters; and

allocating at least a portion of the RF spectrum from the group having least amount of congestion to at least one other RF transmitter.

16. The method of Claim 15, further comprising adjusting demand of each of the transmitters of the group based, at least in part, on quality of service of each of the transmitters of the group.

17. The method of Claim 16, wherein adjusting demand of each of the transmitters of the group includes granting at least a portion of the demand of each of the transmitters of the group.

18. The method of Claim 17, further comprising determining aggregate demand of the group based, at least in part, on the adjusted demand of each of the transmitters of the group.

19. The method of Claim 15, wherein monitoring demand of the group of transmitters includes receiving information representing the amount of data that each of the transmitters of the group requests to exchange.

20. The method of Claim 15, wherein determining relative data congestion of the group of transmitters includes identifying the group with the smallest length of data queue.

21. The method of Claim 20, wherein allocating at least a portion of the RF spectrum includes assigning a portion of the RF spectrum from the group of transmitters having the smallest length of data queue to at least one other RF transmitter.

22. The method of Claim 15, further comprising comparing length of data queue of the group of transmitters with length of data queue of another group of transmitters.

23. The method of Claim 15, further comprising monitoring demand of at least one other group of transmitters within the plurality of RF transmitters, the group comprising at least one RF transmitter.

~~24.~~ A communication receiver that receives radio frequency (RF) signals from a plurality of RF transmitters, the communication receiver accessing a processor that is programmed with instructions that when executed perform a method comprising:

monitoring demand of a group of transmitters within the plurality of RF transmitters, the group comprising at least one RF transmitter;

determining, in response to the monitored demand, relative data congestion of the group of transmitters; and

allocating at least a portion of the RF spectrum from a group having a least amount of congestion to at least one other RF transmitter.

25. The receiver of claim 24, wherein the method further comprises adjusting demand of each of the transmitters of the group based, at least in part, on quality of service of each of the transmitters of the group.

26. The receiver of Claim 25, wherein adjusting demand of each of the transmitters of the group includes granting at least a portion of the demand of each of the transmitters of the group.

27. The receiver of Claim 26, wherein the method further comprises determining aggregate demand of the group based, at least in part, on the adjusted demand of each of the transmitters of the group.

28. The receiver of Claim 24, wherein monitoring demand of the group of transmitters includes receiving information representing the amount of data that each of the transmitters of the group requests to exchange.

29. The receiver of Claim 24, wherein determining relative data congestion of the group of transmitters includes identifying the group with the smallest length of data queue.

30. The receiver of Claim 29, wherein allocating at least a portion of the RF spectrum includes assigning a portion of the RF spectrum from the group of transmitters having the smallest length of data queue to at least one other RF transmitter.

31. The receiver of Claim 24, wherein the method further comprises comparing length of data queue of the group of transmitters with length of data queue of another group of transmitters.

32. The receiver of Claim 24, wherein the method further comprises monitoring demand of at least one other group of transmitters within the plurality of RF transmitters, the group comprising at least one RF transmitter.

33. A system for allocating at least a portion of the radio frequency (RF) spectrum among a plurality of RF transmitters, the system comprising:

a plurality of RF transmitters each configured to transmit data representing respective demand to communicate data; and

a receiver in communication with the plurality of RF transmitters, the receiver being configured to monitor the demand of a group within the plurality of RF transmitters, the group comprising at least one RF transmitter, wherein the receiver is further configured to re-allocate a portion of the RF spectrum from the group of RF transmitters having smallest demand to at least one other RF transmitter.

34. The system of Claim 33, wherein each RF transmitter is configured to periodically transmit data representing the respective demand to the receiver over a dedicated RF channel.

35. The system of Claim 33, wherein the receiver is configured to obtain the respective demand and determine aggregate demand of the group.

36. The system of Claim 33, wherein the receiver is configured to adjust the respective demand based, at least in part, on quality of service of at least one of the RF transmitters.

37. The system of Claim 36, wherein the receiver is configured to determine aggregate demand of the group based, at least in part, on the adjusted respective demand.

38. The system of Claim 33, wherein the receiver is configured to grant at least a portion of the demand to each of the plurality of RF transmitters.

39. The system of Claim 33, wherein the receiver is configured to access a processor that re-allocates the portion of the RF spectrum from the group of RF transmitters having smallest demand to at least one other RF transmitter.

40. The system of Claim 33, wherein the receiver is configured to monitor RF channel performance of at least one of the plurality of RF transmitters.

41. The system of Claim 40, wherein the receiver is configured to measure at least one of the signal-to-noise ratio and bit error rate of the RF channel.

42. The system of Claim 41, wherein the receiver is configured to assign a data rate to at least one of the plurality of RF transmitters based, at least in part, on the channel performance.

43. The system of Claim 41, wherein the receiver is configured to assign an increased data rate to at least one of the plurality of RF transmitters in the event that the measured signal-to-noise ratio is above a predetermined threshold.

44. The system of Claim 41, wherein the receiver is configured to assign a reduced data rate to at least one of the plurality of RF transmitters in the event that the measured signal-to-noise ratio is below a predetermined threshold.

45. The system of Claim 41, wherein the receiver is configured to maintain a currently assigned data rate for at least one of the plurality of RF transmitters in the event that the measured signal-to-noise ratio is within a predetermined range.

46. The system of Claim 33, wherein the receiver is configured to re-allocate the portion of the RF spectrum to at least one other group having a demand that is greater than the smallest demand.

47. The system of Claim 46, wherein the receiver is configured to re-allocate the portion of the RF spectrum in a stepwise manner by a predetermined amount of bandwidth.

48. A method of assigning a portion of the radio frequency spectrum and a timeslot for communication among a plurality of communication devices, wherein each communication device is configured to communicate information representing a respective demand that is saved in a demand queue, and wherein each communication device comprises at least one of a radio frequency (RF) transmitter and receiver, the method comprising:

computing an average data rate of one device of the plurality of communication devices;

determining whether to fulfill demand of the one device based, at least in part, on the average data rate and size of the demand queue; and

assigning to the one device the portion of the frequency spectrum and timeslot that are commensurate, at least in part, with the data rate of the one device, when it is determined to fulfill demand of the one device.

49. The method of Claim 48, further comprising delaying fulfillment of the demand of the one device in the event that the average data rate of the one device exceeds a predetermined threshold.

50. The method of Claim 49, wherein delaying fulfillment of the demand includes scheduling the demand as the last of the demand queue.

51. The method of Claim 49, wherein determining whether to fulfill demand of the one device includes determining if the average data rate is above a predetermined data rate that is below the predetermined threshold.

52. The method of Claim 51, further comprising executing an out random early drop algorithm if the average data rate is between the predetermined data rate and predetermined threshold.

53. The method of Claim 51, further comprising executing an in random early drop algorithm if the average data rate is below the predetermined data rate.

54. The method of Claim 48, wherein computing the average data rate includes determining the data rate of the one device over a predetermined past time interval.

55. The method of Claim 48, wherein assigning to the one device includes scheduling the one device to communicate at a next available timeslot and portion of the frequency spectrum that accommodate for communication at the data rate of the one device.

56. A communication system programmed with instructions that when executed by a processor perform a method of assigning at least a portion of the radio frequency (RF) spectrum among at least one of a plurality of RF transmitters and RF receivers, the method comprising:

monitoring a communication parameter that relates to performance of a group within the plurality of RF transmitters and receivers, the group comprising at least one of the plurality of RF transmitters and receivers;

determining, in response to the monitored communication parameter, a state of performance of the group; and

allocating at least a portion of the RF spectrum from the group having best state of performance to at least one of the plurality of RF transmitters and receivers.

57. The system of Claim 56, wherein the method further comprises determining demand of the group based, at least in part, on the demand of at least one of the RF transmitters and receivers of the group.

58. The system of Claim 57, wherein determining the demand of the group includes adjusting the demand based, at least in part, on quality of service of each of the RF transmitters and receivers of the group.

59. The system of Claim 56, wherein determining the state of performance of the group includes determining length of data queue of the group.

60. A communication system programmed with instructions that when executed by a processor perform a method of assigning a portion of the radio frequency spectrum and a timeslot for communication among a plurality of communication devices, wherein each communication device is configured to communicate information representing a respective demand that is saved in a demand queue, and wherein each communication device comprises at least one of a radio frequency (RF) transmitter and receiver, the method comprising:

computing an average data rate of one device of the plurality of communication devices;

determining whether to fulfill demand of the one device based, at least in part, on the average data rate and size of the demand queue; and

assigning to the one device the portion of the frequency spectrum and timeslot that are commensurate, at least in part, with the data rate of the one device, when it is determined to fulfill demand of the one device.

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61. The system of Claim 60, wherein the method further comprises delaying fulfillment of the demand of the one device in the event that the average data rate of the one device exceeds a predetermined threshold.

62. The system of Claim 60, wherein assigning to the one device includes scheduling the one device to communicate at a next available timeslot and portion of the frequency spectrum that accommodate for communication at the data rate of the one device.

63. A system for assigning at least a portion of the radio frequency (RF) spectrum among at least one of a plurality of RF transmitters and RF receivers, the system comprising:

means for monitoring a communication parameter that relates to performance of a group within the plurality of RF transmitters and receivers, the group comprising at least one of the plurality of RF transmitters and receivers;

means for determining, in response to the monitored communication parameter, a state of performance of the group; and

means for allocating at least a portion of the RF spectrum from the group having best state of performance to at least one of the plurality of RF transmitters and receivers.

64. The system of Claim 63, further comprising means for determining demand of the group based, at least in part, on the demand of at least one of the RF transmitters and receivers of the group.

65. The system of Claim 64, further comprising means for adjusting the demand based, at least in part, on quality of service of each of the RF transmitters and receivers of the group.

66. A system for allocating at least a portion of the radio frequency (RF) spectrum among a plurality of RF transmitters, the system comprising:

means for monitoring demand of a group of transmitters within the plurality of RF transmitters, the group comprising at least one RF transmitter;

means for determining, in response to the monitored demand, relative data congestion of the group of transmitters; and

means for allocating at least a portion of the RF spectrum from the group having least amount of congestion to at least one other RF transmitter.

67. A system for allocating at least a portion of the radio frequency (RF) spectrum, the system comprising:

a plurality of means for transmitting information representing respective demand to communicate data; and

means for monitoring the demand of a group within the plurality of transmitting means, the group comprising at least one transmitting means;

means for allocating a portion of the RF spectrum from the group of transmitting means having smallest demand to at least one other transmitting means.

68. A method of assigning a portion of the radio frequency (RF) spectrum among a plurality of transmitters, the method comprising:

monitoring demand of at least first and second groups of transmitters, the first group operating at an average data rate that is different than the data rate of the second group of transmitters;

adjusting the demand of each of the at least first and second groups of transmitters based at least in part on a quality of service that is commensurate with each transmitter of the first and second groups of transmitters;



determining, based at least in part on the adjusted demand, the group of transmitters that is least congested;

reducing the size of RF bandwidth that is assigned to the least congested group of transmitters; and

increasing the size of RF bandwidth that is assigned to the other group of transmitters.

69. The method as defined in Claim 68, wherein determining the group of transmitters that is least congested includes identifying the group of transmitters that has the smallest data queue.

70. A method of assigning a portion of the radio frequency (RF) spectrum and a timeslot among a plurality of transmitters whose demand is placed in a demand queue, the method comprising:

transmitting a demand to communicate a predetermined amount of data to a receiver;

determining an average data rate of at least one transmitter of the plurality of transmitters;

comparing the average data rate of the at least one transmitter to at least one predetermined threshold; and

assigning the next available RF bandwidth and timeslot to the at least one transmitter, if the average data rate is below the predetermined threshold.

71. The method as defined in Claim 70, further comprising delaying assignment of the RF bandwidth and timeslot, if the average data rate is above the predetermined threshold.

#### REMARKS

By this document, Applicant has amended Claim 1, has canceled Claims 2-4, and has added Claims 5-71. Thus, Claims 1 and 5-71 are now pending in the application. Claims 5-71 have been added to set forth aspects of the invention which define patentable subject matter. Applicant submits that all claims presented herein are in condition for allowance.